

# Intestinal nematode: *Ancylostoma duodenale*

## Introduction

*Ancylostoma duodenale* is a species of the roundworm family Ancylostoma. It is a parasitic nematode worm and usually known as the Old World hookworm. It lives in the small digestive system of hosts, for example, people, cats and dogs, where it can mate and develop. *Ancylostoma duodenale* and *Necator americanus* are the two human hookworm species that are ordinarily examined together as the reason for hookworm disease. They are dioecious. *Ancylostoma duodenale* is abundant all through the world, including Southern Europe, North Africa, India, China, Southeast Asia, a few territories in the United States, the Caribbean, and South America.

## Epidemiology

*Ancylostoma duodenale* is pervasive in Southern Europe, North Africa, India, China, and Southeast Asia, little zones of United States, the Caribbean islands, and South America. This hookworm is notable in mines as a result of the consistency in temperature and dampness that gives a perfect territory to egg and adolescent advancement. An expected 1 billion individuals are infected with hookworms. Transmission of *A. duodenale* is by contact of skin with soil violated with hatchlings. The manner in which it enters the human body was comprehended during the 1880s, after a plague of **ancylostomiasis** among diggers working in the hot and sticky Gotthard Tunnel (Switzerland).

## Morphology

*A. duodenale* is small, round and cylindrical worm, grayish-white in shading. It has two ventral plates on the front edge of the buccal case. Every one of them has two huge teeth that are combined at their bases. A couple of little teeth can be found in the profundities of the buccal container. **Males** are 8–11 mm long with a copulatory bursa at the back end. **Females** are 10–13 mm long, with the vulva situated at the back end; females can lay 10,000 to 30,000 eggs for each day. The normal life expectancy of *A. duodenale* is one year.

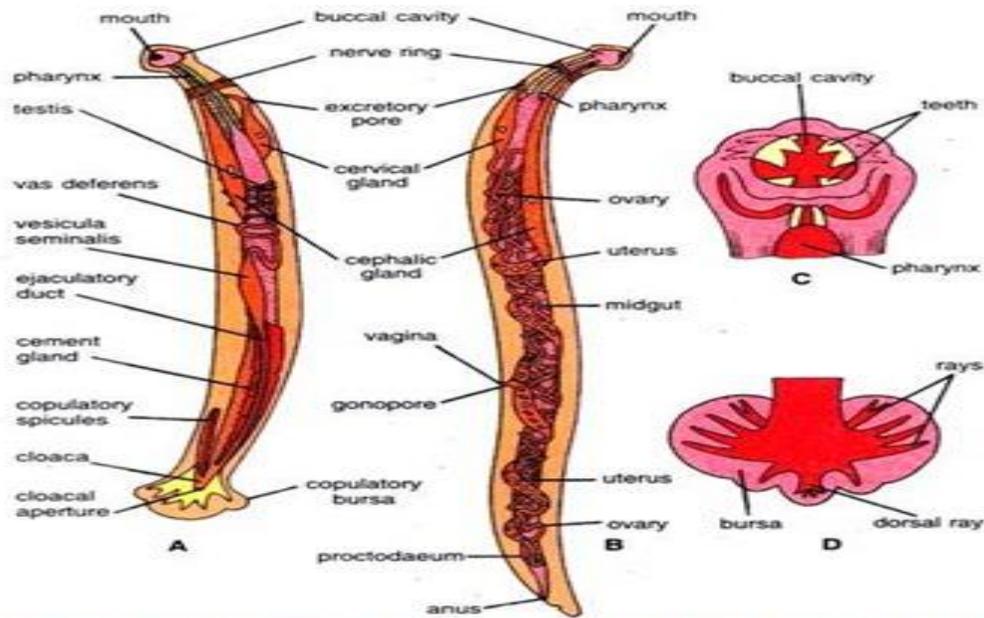


Fig. 47.1. *Ancylostoma duodenale*. A—Adult male; B—Adult female; C—Anterior end D—Posterior end of male.

## Host range

Single host: Humans and other mammals like cats and dogs.

## Life cycle

After a filariform "infective" larva enters the skin – most normally through the feet – the larva enters the blood flow. It is then conveyed to the lungs, breaks into alveoli, rises the bronchi and trachea, and is hacked up and gulped once again into the small digestive tract, where it develops. The hatchling later develops into a grown-up in the small digestive tract (jejunum for the most part), where they join to the villi and female worms can lay 25,000 eggs for every day. The eggs are discharged into the excrement and dwell on soil; when deposited on warm, moist soil, a larva quickly develops in the egg and brings forth following 1 to 2 days (hatching). This rhabditiform hatchling moults twice in the soil and turns into a skin-infiltrating third infective larva just in 5–10 days. The infective rhabditiform larva can detect vibrations in the dirt, warmth, or carbon dioxide, and can utilize dendritic processes like cilia. They utilize these processes as thermosensory, chemosensory, and mechanosensory receptors to move towards a host for contamination. The rhabditiform larva would then be able to enter the uncovered skin of another life form and start a new cycle of infection.

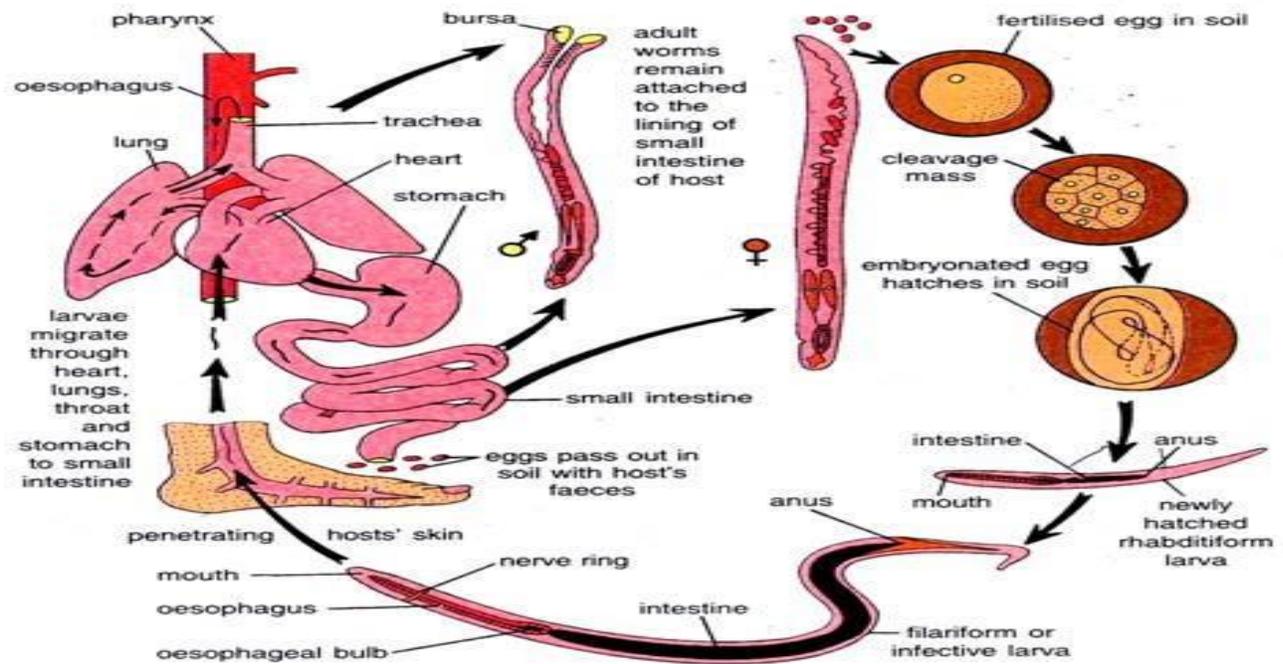


Fig. 47.2. *Ancylostoma duodenale*. Life cycle.

## Diagnosis

- People can turn out to be infected when walking barefoot since hookworm larvae reside in the earth and can enter the skin. At earliest, people may have prickly itchiness where the larvae enters the skin, then high chills, coughing, and abdominal soreness, loss of hunger, and dehydration problems.
- Persistent infections can bring loss of blood and anemia that is occasionally severe enough to cause exhaustion and seldom heart failure and pervasive swelling.
- Doctors detect the infection by identifying hookworm eggs in a stool test.

## Treatment

*A. duodenale* can be treated with mebendazole, albendazole, and benzimidazoles. Pyrantel pamoate is an option. In severe cases of anemia, blood transfusion may be required.

## **Prophylaxis**

1. Education.
2. Better sanitation practices.
3. Controlled disposal of human feces is essential.
4. Wearing shoes in prevalent areas can trim down the prevalence of infection.
5. Clean neighboring is of utmost importance.